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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/795,879

03/08/2004

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61404-1100

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08/08/2006

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EXAMINER

AWAI, ALEXANDRA F

ART UNIT

PAPER NUMBER

3663

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 6/13/2006 have been fully considered but they are not in every respect persuasive. Those rejections that have been overcome by amendment are omitted from the present Office Action and are to be considered withdrawn. Claims 1-10, 12-34, 48-51 and 53-58 have been examined.

With regard to the issue of whether or not the relationship characterized as “substantially aligned” is indefinite, Examiner respectfully disagrees with Applicant. Although Fig. 9 and page 11 of the specification disclose a particular embodiment that is so aligned, this cannot alter the fact that the claims fail to particularly and distinctly claim the subject matter. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). A skilled artisan being capable of reading the disclosure in its entirety and understanding what the inventor *means to claim* is not equivalent to the inventor *actually claiming* what they mean to claim. The skilled artisan should not be obliged to review the figures in order to clarify ambiguities in the claim language. To align simply means to place in a line, or to adjust to produce a proper condition or relationship; and so as long as a line can be drawn between two objects, they are aligned. It is therefore redundant for sidewalls to be in alignment with a straight line. The nature of the alignment – i.e., the newly claimed line of alignment – of the claimed components has yet to be recited in the claims. The artisan reading the claims would not be able to ascertain the directionality of the newly claimed straight lines. This ambiguity might be

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remedied by establishing *in the claims* whether or not the sidewalls are parallel or perpendicular to one another, for example, much as the first and second sidewalls of a single tube are characterized.

With regard to Soot, Applicant fails to address the statement on page 5 of the previous Office Action that refers to Fig. 8 of that patent document. One can clearly see that there are rods (39) mounted in the recesses of two adjoining corners. Examiner never suggested that it was *not advantageous* to making the rods integral with the tubes by fitting them into recesses. Rather, it is stated that there is nothing *particularly inventive or unexpected* about this mode of integration. The skilled artisan does not require the inventor's guidance or particular motivations in order to utilize the practice of setting a dowel or other similarly shaped connecting element into a fitted recess, as such is a ubiquitous expedient in the mechanical arts. In this case, the argument that it is advantageous has no bearing on the invention's novelty, but rather demonstrates an obvious motivation to apply a well-known and oft-used mechanical technique. It is *prima facie* obvious that reducing the size of connecting elements between the tubes will preserve space in the developed cell. Accordingly, one could argue that configurations such as that shown in Ohsono et al. (Fig. 1) operate on this principle by eliminating the connecting bar altogether. Nevertheless, this issue is not of primary importance given that Applicant's assertion that the cited references of record fail to show or suggest rods disposed in recesses of at least two tubes is completely without merit in view of Examiner's discussion of Soot, Fig. 8.

***Claim Objections***

2. Claim 5 is objected to because “engaging” should be replaced with “engages”. Claim 8 is also unnecessarily verbose and repetitive. For example, the fact that the first rods are mounted in corresponding recesses should be addressed when the mounting of the rods is first mentioned in line 4 of the claim. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-7, 15-17 and 49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what relationship is defined by having the various sidewalls of tubes in the container by substantially aligned (with straight lines) as discussed in section 1 of this Office Action.

Claims 2 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are those between the plurality of rods (claim 1), the first rods (claim 2) and second rods (claim 4). That is, the claims are unclear because they further limit claim 1 by reciting first and second rods, but an ambiguity exists because the first and second rods may belong to the plurality of rods recited in claim 1, or not. Similarly, it is not clear how the first and second sets of the tubes (claim 5) are related to the plurality of tubes (claim 1).

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It seems that more terms are being used to refer to groups of components than are warranted by the disclosed embodiments.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Soot.

Soot discloses a nuclear fuel storage rack with tubes that are each created from U-shaped elements (Fig. 4) and arranged in an alternating pattern by connections formed at the corners (44) of the tubes. These corners have both corresponding recesses and flat, load-bearing surfaces. Rods (e.g., Fig. 6 and Fig. 7) are attached to – and mounted in recesses of – one tube and mounted in the recess of the adjoining tube. Once assembled, the elements form a plurality of tubes having aligned sidewalls as recited in claim 1. While patent drawings are not drawn to scale, relationships clearly shown in the drawing of a reference patent cannot be disregarded in determining the patentability of claims. See *In re Mraz*, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 3-10, 12-17, 19-34 and 48-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soot as applied to claim 18 above, and further in view of admitted prior art Bosshard.

Soot teaches an alternating arrangement of square tubes that is equivalent to the developed cell – inclusive of a four-tube array, which is disclosed by the applicant as conventional, as well as the placement of rod segments (Fig. 8) mounted at the corners of the tubes, and the use of welding (e.g., 43) for obtaining additional rigidity. Defining first and second rods attached to abutting tubes that are mounted in recesses and that are aligned with one another is equivalent to characterizing the single rods (39) of Soot as two separable rods. This characterization does not introduce any novel aspect to the invention (MPEP § 2144.04.V.C).

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Moreover, as will be discussed, Bosshard teaches cooperating connecting elements secured to each other and to respective tubes.

Applicant states that dry storage systems are typically housed in containers. Note MPEP § 2129 [R-3], which states, “A statement by an applicant during prosecution identifying the work of another as prior art is an admission that that work is available as prior art against the claims.”

If the tubes are housed inside the horizontal type of container disclosed as known by the applicant, it is inherent that the tubes will contact at least one side of the container (claim 48). As to limitations which are considered to be inherent in a reference, note the case law of *In re Ludtke*, 169 USPQ 563, *In re Swinehart*, 168 USPQ 226, *In re Fitzgerald*, 205 USPQ 594, *In re Best et al.*, 189 USPQ, and *In re Brown*, 173 USPQ 685, 688. The load-bearing surfaces of the tube corners in the design taught by Soot directly abut load-bearing surfaces of adjoining tubes. Soot does not teach that the rods may be hollow and used with cooperating pins.

The hollow rod-pin combination recited in the current claims amounts to no more than a description of the commonplace hinge, having a barrel comprised by two knuckles, each knuckle extending from a separate leaf, where the leaf consists of the sidewall of one of the adjacent tubes. This type of structural connection is notoriously well known. Alternatively, Bosshard provides a teaching for an annular element that connects the corners of tubes in a rack for storing nuclear fuel and into which a pin having a head and body portion is inserted (Figs. 2 and 3). This structure is equivalent to that created by the axially aligned hollow rod and pin combination claimed in the present application because the only different is which aspects of the connection are made integral as opposed to separable. Additionally, Bosshard discloses that it is considered a simple and reliable solution to connect square tubes with lugs in the form of hinges or pivots



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that are welded to the edges of those tubes and to pass a pin through the lugs to provide lateral support to the tubes (col. 1, lines 7-21).

Receiving rods in recesses at the corners of the tubes is structurally equivalent to forming the rods as an integral part of the tube corner. Unless there is something particularly inventive or unexpected about the mode of integration of these parts – and in the present application this is not the case – such a structure is not considered inventive, regardless of its advantageous nature. See *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965). Note, as discussed in section 1 of this Office Action, that Soot demonstrates it is *not* novel to position rods to be received in recesses (Fig. 8). Increasing the number of the hinge-like connections or of the rod-recess connections at the corners is no more than the duplication of parts with predictable and intended effects. See *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

It would have been obvious to one skilled in the relevant art to combine the features (i.e., the various connector assemblies) and teachings (i.e., the use of welding) of the foregoing references to achieve the structures and arrangement claimed because to do so would be a cost-effective use of widely available technology. For example, the joints described by Soot are intended to provide a rigid structure with good resistance to seismic loads (see Abstract), and Bosshard states that having hinge-like connections for fuel storage racks is a simple and reliable choice. To achieve the presently claimed invention, one would only have to replace some of the rod-recess connections of the device taught by Soot with some of the hinge-like connections discussed in Bosshard, and to apply this technology to conventional dry storage vessels. The motivation to make this modification would be to take advantage of the stated benefits of each established technology. It is noted that no new features have been recited in the amended claims,

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but rather that features (e.g., positioning rods in recesses) previously not mentioned in the independent claims have been appended there.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In particular, note newly cited patents by Russell and Cabrelli that demonstrate that Applicant is not the inventor of the configuration wherein cylindrical connecting elements are mounted in fitted recesses. These teachings are related to the present invention because they both involve structural connections or mechanical joints.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexandra Awai whose telephone number is (571) 272-3079. The examiner can normally be reached on 9:30-6:00 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AA

August 1, 2006

  
SUPERVISORY PATENT EXAMINER